Appendix B—Alternative Land Use Scenarios

Description of the Scenarios

Introduction

The following section summarizes the three land use scenarios that were considered in the preparation of the City and Regional Land Use Plans. Each of the scenarios was based on a different set of values describing how the region would develop if these plans were to be implemented.

It is important to remember that none of the scenarios represented the proposed plan for the region. Rather, the scenarios represented tools to help discuss the values and tradeoffs of planning decisions that were part of the regional planning process.

The final result of the planning process included some features of each scenario, as well as some entirely new features that evolved during the process of evaluating them. More specific policies were developed following the evaluation of alternative scenarios and in the development of the preferred plan.

Scenario 1—Current Trends

Land Use

Scenario 1 is based upon a continuation of current development trends and patterns, similar to that which has occurred over the past 10 years. Land use types, densities, and basic development patterns would be assumed to continue in a manner similar to currently developed areas, following similar policies in effect today. If we extend the present trends into the future, we get a picture of a region where new residential development tends to occur in previously undeveloped areas, with some areas of infill or redevelopment occurring on larger vacant parcels within developed areas of the city, rather than within existing neighborhoods. Commercial development will tend to occur in relatively large developments along major arterial streets and highways. The total amount of land to be developed under Scenario 1 is as follows:

Table 8. Scenario 1—Total Land Developed

Category	*Acres*	*Percent of Total Developed*
Residential	8,911	90%
Commercial	551	7%
Industrial	271	3%
Total	*9,733*	*100%*

Housing

The mix of housing types and densities will generally be similar to that which has been developed in the city and region over the past 10 years. Approximately 40 percent of new housing within the city will be single family detached homes, 30 percent will be medium density (single family attached homes, townhomes, and mobile homes), and 30 percent will be higher density condominiums or apartments. Within unincorporated areas of the county, most new development would occur in the form of large-lot developments, averaging 2½ acres per dwelling, on land that is currently privately owned and undeveloped.

Employment

New employment areas will be distributed in various locations in the region, along major access routes. Major employment areas include Flagstaff Ranch Road at I-40, to the west of the current city limits; adjacent to Pulliam Airport; on McMillan Mesa; at Bellemont, along I-40; and along the rail line and US 66, in the east side of the city. The development patterns of these areas would be similar to that which has occurred in the region to date, with employers located in free-standing buildings along major roadways.

Transportation

This scenario would require a broad, multimodal system approach to transportation. There would be a need for a significant expansion of roadway infrastructure to achieve needed capacity with an emphasis on existing roadway corridors, although some missing segments of existing roads and some new roadways might be needed. Emphasis would continue to be placed on the automobile, as transit service would continue to be focused on areas within the core area of the city. Transit service would be increased in the core urban area and along major arterial roadways. Pedestrian and bicycle improvements would be pursued citywide.

Open Lands

Scenario 1 will utilize much of the remaining undeveloped private land within the city's Urban Service Boundary as well as private undeveloped land in unincorporated areas. This will create increasing pressure (within the 20-year horizon and beyond) for development of public lands, but most likely those designated low priority for retention as open space in the Regional Open Spaces and Greenways Plan.

Scenario 2—Compact Urban Growth

Land Use

The primary policy objective of this scenario is to maximize development within the city's Urban Service Boundary, thereby minimizing development at the periphery of the city. This scenario assumes that Flagstaff develops in a pattern that is more compact and urban than the current pattern of development within the city and its Urban Service Boundary. The land use pattern would be more compact and transit-supportive on a regional level. A significant amount of development will occur in the form of infill and redevelopment, on vacant and underdeveloped property within existing neighborhoods. The areas of the city within which this is most likely to occur are identified on the Scenario map as "Neighborhood Infill/Redevelopment Areas".

This scenario also includes a dispersed set of activity centers. The centers would be located both within the urban service area boundary, as well as in areas outside the boundary in unincorporated

areas, as appropriate to serve existing population centers. The objective of these activity centers would be to serve resident needs on a more localized basis.

Table 9. Scenario 2—Total Land Developed

Category	*Acres*	*Percent of Total Developed*
Residential	8,958*	92%
Commercial	420	5%
Industrial	339	3%
Total	*9,717*	*100%*

*Includes residential development in the county that will occur in currently developed areas on vacant parcels.

Housing

A significant amount of new residential development would occur within the city and its Urban Service Boundary at densities moderately higher than current development patterns. The mix of residential housing in the community will include a higher percentage of attached housing, small-lot single family, multi-family, and accessory dwellings, such as carriage homes or other additional dwelling located at the rear of a building lot.

Most new development would occur within a new land use category, "mixed-use neighborhood". The mixed-use neighborhood category, intended to be the predominant form of new residential development within the city, will develop at approximately five dwelling units per acre overall. Neighborhoods will be walkable and connected and will include a mix of housing types. These neighborhoods will consist of a mix of single family homes on small and average sized lots, townhomes, and duplexes. Commercial uses, housing, jobs, and civic uses would be located within close proximity to encourage walking and bicycling.

Within unincorporated areas, Scenario 2 assumes that a significant amount of new housing will occur on vacant parcels and building lots within existing developed areas, at similar densities to development occurring today (2½-acre lots). According to estimates by the Coconino County Planning Department, there are approximately 3,000 building lots in unincorporated areas that are vacant. Scenario 2 assumes that half of the projected development, approximately 1,600 homes, occurs on existing vacant lots rather than on newly created parcels. This accounts for more than 4,000 acres of the land required to accommodate projected development in the county.

Employment

Much of the new employment in Scenario 2 will be located in three employment activity centers, located at Flagstaff Ranch Road and I-40, McMillan Mesa, and Pulliam Airport. While these locations are similar to those of Scenario 1, the employment activity centers will include a more diverse mix of activities and uses, including supporting commercial and service businesses. The activity centers will also be more transit-oriented in their design, reducing reliance on car trips for employees. In this scenario, industrial uses would not be encouraged to locate at Bellemont, due to the distance from the core area of the city.

Transportation

This scenario would require good walking, bicycling and transit circulation systems with the downtown/NAU core area. It would also be essential to implement a continuous, connected local pedestrian grid in and around each of the other major activity centers. There would be a higher

level of transit trunk service than in Scenario 1 or 3, with an emphasis on local service in all major arterial corridors connecting activity centers, and significant levels of express commuter service. Transit service expansion would be supported by transit-expediting improvements such as bus-only lanes coupled with traffic signal preemption, transit centers, and so forth. Intersection improvements and other roadway efficiency projects addressing "bottlenecks" would be more important than "new-alignment" roads.

Open Lands

Scenario 2 will result in development of significantly less land than either Scenario 2 or 3. The pattern of open lands surrounding the city would largely remain intact, as a result of the decrease in development pressure on public lands within the region. This means that more public land will be available after the year 2020 for development and conservation considerations.

Scenario 3—Dispersed Development

Land Use

Scenario 3 assumes a shift in development patterns towards a lower density, more dispersed pattern of development than that which currently exists in the region. The scenario assumes that a significant amount of new development at very low densities occurs at the periphery of the Urban Service Boundary, and in some cases beyond the boundary. Some of this development would occur on State Trust lands identified as having a low priority for retention as open space. In addition, a much higher percentage of new development would occur as very low and low density residential development than would in either Scenario 1 or 2.

Table 10. Scenario 3—Total Land Developed

Category	*Acres*	*Percent of Total Developed*
Residential	9,915.0	93%
Commercial	553.3	6%
Industrial	201.5	2%
Total	*10,669.8*	*101%*

Housing

Over the past 10 years, as described in the introduction and overview section of this document, the development trend in the city has shifted toward a higher percentage of new development that is medium and high density development, rather than single family homes. Scenario 3 assumes that the housing trend would shift back toward a higher percentage of single family homes than has been occurring for the past ten years. Approximately 62 percent of all new housing in the city, and 66 percent for the city and county combined, would be single family homes. In the city, much of this development would occur at the periphery of the city's Urban Service Boundary. In the county, most development would occur on private lands dispersed throughout the region.

Employment

The pattern of employment in Scenario 3 is similar to that in Scenario 1, with new areas of development occurring at Flagstaff Ranch Road and I-40, McMillan Mesa, Pulliam Airport, and along US 66.

Transportation

This scenario would require an expanded roadway system including new-alignment roadways and numerous road projects addressing missing links. It would be important to develop the street system in more of a grid pattern than it is today to better distribute traffic and mitigate what would probably be very high levels of congestion along the state highway corridors.

This scenario would have the highest ratio of highway lane miles per capita and the lowest levels of transit service. Scenario 3 would be the most auto-dependent of all of the land use scenarios.

Open Lands

A significant amount of public land will be developed under Scenario 3. The land is designated low retention priority for open space in the Regional Open Spaces and Greenways Plan. More land is consumed in a shorter period of time than in the other two scenarios. This leaves less public land for development and conservation considerations post-2020.

Comparison and Analysis of Policy Scenarios

The following is a comparison of the three alternative policy scenarios. This discussion is intended to provide an understanding of the implications of each scenario, while providing a comparison of the tradeoffs and expectations that each may produce if implemented.

Overall Land Use

The total planning area (lands within the Flagstaff Metropolitan Planning Organization boundary) is 336,638 acres, which is just over 525 square miles. Table 11 below summarizes the amount of existing developed land in the MPO, as well as the amount of land that would be developed, remaining undeveloped private land, and public lands.

Table 11. Overall Land Use (acres)

	Scenario 1	*% MPO*	*Scenario 2*	*% MPO*	*Scenario 3*	*% MPO*
Existing Developed Area—City	11,419	3.3	11,419	3.3	11,419	3.3
Existing Developed Area—County	20,292	6.0	20,292	6.0	20,292	6.0
Total Existing Developed	31,711	9.4	31,711	9.4	31,711	9.4
New Development—City	4,145	1.2	5,274	1.5	7,403	2.2
New Development—County	9,488	2.8	4,346	1.2	8,448	2.5
Total New Development	13,633	4.0	9,620	2.9	15,851	4.7
Vacant Private Land	4,223	1.3	8,392	2.5	4,789	1.4
State Trust Lands	25,598	7.6	25,295	7.5	23,976	7.1
Public Multiple Use	248,375	73.8	248,375	73.9	246,952	73.4
Navajo Depot	12,018	3.6	12,018	3.6	12,018	3.6
County/Other	1,080	0.2	1,080	0.2	1,080	0.2
Total	*336,638*	*100.0*	*336,638*	*100.0*	*336,377*	*100.0*

In all three scenarios, there are significant amounts of public land, primarily in the category of public multiple use, which will remain in the year 2020. The overall pattern of the region will continue to be largely shaped by the wealth of surrounding forested lands. The primary difference between the scenarios is in the amount of private and public land that is absorbed for new

development, and the resulting private land that is available for development in the future. Scenario 1 will result in the development of most of the remaining private lands within or near to the city boundary, as well as development of most of the remaining private lands in the unincorporated areas of the county. Scenario 2 will result in more than 8,000 acres of private land remaining available for future development, both within the city boundary as well as in the county. Scenario 3 would absorb the highest amount of land for new development. In addition, because of the dispersed development pattern of Scenario 3, a significant amount of the developed land consists of public lands (3,976 acres of state and USFS lands). While development of Scenario 3 will still leave more than 4,700 acres of private land available for future development, the dispersed pattern may have the effect of pushing development "further out" from the core of the city. This may increase pressures on public lands for further development, as well as eroding the public land "edge" of the city.

All three alternatives are different in the effect they may have on expansion of the city's Urban Service Boundary onto public lands. Scenarios 1 and 3 would require expansion onto public lands, with Scenario 3 requiring considerable expansion. Scenario 2 would not require expansion of the Urban Service Boundary onto public lands.

Residential Land Use and Housing

The majority of land absorbed for residential uses in all three alternatives is designated for large-lot, very low density housing, with most located in unincorporated areas of the county. Even Scenario 2, which is the most compact of the scenarios, sets aside 35 percent of residential land for this type of housing. It is important to note, however, that Scenario 2 assumes that more than half of the land to be dedicated to very low density residential development will be located within areas of the county that are already devoted to rural-type housing, in lots or tracts that are surrounded by existing development. This will significantly reduce the areas of the county where new very low density development will occur, since fewer new areas will be developed. However, this will require policies that strongly favor the development of housing in "rural infill" areas, rather than development of new areas for very low density housing.

Table 12. Residential Land Use (acres)

	Scenario 1	*%*	*Scenario 2*	*%*	*Scenario 3*	*%*
Very Low Density/New Areas	6,732	75.8	3,174	35.4	7,479	74.2
Very Low Density/Existing County Areas	0	0.0	4,000	44.6	0	0.0
Low Density	1,532	16.9	745	8.3	1,970	20.8
Medium Density	447	4.9	314	3.5	331	3.5
High Density	201	2.2	101	1.1	136	1.4
Mixed-Use Neighborhood	0	0.0	628	6.9	0	0.0
Neighborhood Infill/Redevelopment	0	0.0	0	0.0	0	0.0
Total Residential Area	*8,913*	*100.0*	*8,964*	*100.0*	*9,919*	*100.0*

Other differences include the allocation of 628 acres in Scenario 2 to mixed-use neighborhoods, primarily in the Canyon del Rio area and in the West Side near Woody Mountain Road, and a higher number of acres dedicated to high density housing in Scenario 1.

As can be seen in Table 13 below, with the exception of very low density housing, there are significant differences in the mix of housing types for each scenario. Scenario 3 provides for the

highest amount of low density single family housing, at more than 5,700 homes (42 percent). Scenario 1 provides for the largest amount of medium and high density housing, although it should be noted that Scenario 2 includes a significant amount of land in Mixed-Use Neighborhoods that would include a mix of housing types. Scenario 2 allocates more than 3,000 new dwellings to Mixed-Use Neighborhoods, and also assumes that 845 homes, or about 6 percent of the total new housing in the region, will occur in the form of infill and redevelopment.

Table 13. Residential Land Use (dwelling type)

	Scenario 1	*%*	*Scenario 2*	*%*	*Scenario 3*	*%*
Very Low Density/New Areas	2,753	19.2	1,353	9.2	3,200	22.9
Very Low Density/Existing County Areas	0	0.0	1,600	10.8	0	0.0
Low Density	4,427	30.7	3,946	26.9	5,693	41.0
Medium Density	3,705	25.7	2,496	16.9	2,746	19.1
High Density	3,535	24.5	1,319	8.9	2,387	17.0
Mixed-Use Neighborhood	0	0.0	3,124	21.5	0	0.0
Neighborhood Infill/Redevelopment	0	0.0	845	5.8	0	0.0
Total Residential Dwellings	*14,421*	*100.0*	*14,685*	*100.0*	*14,029*	*100.0*

How will the Flagstaff area be different? If Scenario 1 were to be implemented, we might expect residential areas in the city to look generally the same as they do today, with similar densities and mix of housing types. Of course, the city will be larger, with more than 2,200 acres of new residential development. County areas will look significantly different, with the development of an additional 9 square miles of new, very low density development. As a result, many areas in the county that are currently undeveloped will be developed to accommodate this additional housing. Affordability will continue to be a major issue, with most affordable housing to be found in medium and high density developments, or in outlying areas resulting in higher household transportation costs due to remoteness.

If Scenario 2 were to be implemented, the city's new neighborhoods would likely appear quite different than they do today. Densities would be moderately higher, with a broader mix within neighborhoods of single family homes, attached homes, and multi-family housing. Neighborhoods would also be more walkable, and may contain a wider range of shopping and services. Existing neighborhoods would also be different in some locations, such as the Sunnyside and Southside neighborhoods. More housing would be in the form of infill and redevelopment. With a broader range of available housing types, affordability may be less of an issue than under Scenarios 1 and 3. While there would still be considerable new development in unincorporated areas, a lot of building would tend to have occurred on existing, undeveloped lots and within the limits of existing developed areas. Some of the new county-area development may occur as cluster/open space subdivisions, in order to preserve increasingly precious open space as county areas build out and become, as a result, seemingly less "rural". Activity centers in outlying areas may help provide areas of community focus, as well as reduce the amount of driving by county residents for shopping and services.

Under Scenario 3, housing areas in the region would take on a different character. More of the new housing would be large-lot single family than in the region today, located further away from the core of the city. Residents of these new neighborhoods would likely rely on their cars for most trips, due to lower densities and greater distances from shopping and services. Housing affordability will likely be most critical in Scenario 3, due to the shift towards lower densities and

a greater dispersal of housing. There may be increased pressure for lower cost housing in the county, due to the lack of opportunities to be found in the city and the county. This will increase travel burdens for residents forced to move further out beyond the MPO boundary in order to locate affordable housing. A significant component of Scenario 3 might include gated golf course communities south of I-40.

Employment

All three scenarios provide for a similar level of new jobs, with major new concentrations of new employment oriented development opportunities. These areas are located on the West Side at US 40 and Flagstaff Ranch Road; to the south at Pulliam Municipal Airport; to the east along Highway 66, I -40, and the rail line; and on McMillan Mesa in the core area of the city, accessed by an extension of Enterprise Road. Under all scenarios, some industrial development is also proposed at Bellemont and Winona, at the west and eastern-most edges of the MPO.

The primary distinction between the scenarios would be the designation of the West Side, Pulliam Airport area, and McMillan Mesa as employment activity centers. Similar to the concept of mixed-use neighborhoods, employment activity centers would be encouraged to develop with a variety of land use types, including light industrial/manufacturing, offices, and a range of supporting uses. These areas would be intended to be more transit-supportive in their site design, and would include a well-integrated mix of land uses, with better urban design implemented during the development process.

Open Lands and Resource Areas

Flagstaff is surrounded by land under public jurisdiction. As previously noted, nearly 75 percent of land in the MPO is under jurisdiction of the US Forest Service and National Park Service, and an additional 8 percent is under jurisdiction of the State Land Department. The vast majority of these lands at the further reaches of the MPO Boundary will remain intact as open lands, and will not be subject to development pressure. Some areas of USFS land close to the city identified as low priority for open space retention may be subject to development pressure as a result of land exchanges, but they do not constitute a significant portion of federal lands within the MPO. Of greater significance are the State Trust lands surrounding the city. There are more than 25,000 acres of State Trust land within the MPO boundary, including more than 6,500 acres (10 square miles) within the city limits. These lands are subject to sale, at public auction, for development or other purposes. The timing of such action would likely be dependent on market pressures, which will be influenced by the land use pattern established over the next 10–20 years, as well as the amount of private land available for development.

How might the scenarios impact the use of open lands over the next 20 years? Under Scenario 1, most of the private land within the MPO available for development will have been utilized, with only about 2,600 acres remaining, in scattered locations. This will increase pressures for development on State Trust lands, most likely those that are located closer to the existing developed areas of the city, with reasonable access to roads and utilities. Under Scenario 2, more private land will remain available for development (8,300 acres), decreasing somewhat the development pressures on public lands. Scenario 3 will place the most pressure on open lands, both due to increased consumption of land for development as well as the tendency for lower density development in the region to move further out from the core area of the city. This may increase development pressure on public lands that have a higher priority for open space retention, as well as increase the acquisition cost of lands that are targeted for protection.

Community Facilities and Services

Each of the scenarios will make demands on existing and planned public facilities. The residents of new housing and employees in new commercial, industrial or office uses would require the expansion of public water and sewer systems, schools and parks, and fire and emergency services as well as create impacts on roads and other transportation facilities. For some facilities, impacts would be similar for all alternatives because the potential number of new residents are similar. The following is a brief summary and analysis of the infrastructure and community facilities requirements, as well as an analysis of the differences between scenarios where appropriate. One of the key issues to be addressed for all three scenarios is the level of service to be required for development in the county. At present, many areas have developed with inadequate levels of service for critical facilities and services, including potable water, roadways and fire protection.

Potable Water

Additional production capacity will be required in order to ensure a reliable supply of water, particularly in dry years. New water distribution lines will be required to provide service to the West Side, McMillan Mesa, and Canyon del Rio areas for Scenarios 1 and 2. Additional distribution facilities will be required for Scenario 3, to areas west of the Country Club, south and west of Canyon del Rio, and additional outlying areas.

Sanitary Sewer

Expansion of the city's Rio de Flag and Wildcat Hill treatment plants will be required for all three scenarios, as well as expansion of wastewater service mains and construction of new lines to provide collection facilities in new development areas. Scenarios 1 and 2 require line extensions; Scenario 3 requires additional line extensions to serve outlying areas.

Storm Drainage

All three scenarios require the construction of several regional detention facilities along the Rio de Flag and tributary streams. Under Scenario 2, some areas of the city with current storm drainage facility deficiencies may experience more significant problems as a result of increased development. This may include areas along the Clay Avenue Wash and the Bow and Arrow Wash, due to the higher concentrations of development in each respective watershed. Scenario 3 may generate new system deficiencies due to outlying development in sections 20, 25 and 26, and in the southeast quadrant of the city along the Peaceful Valley Wash and Rio de Flag downstream of Butler Avenue.

Community Facilities

Library needs for all scenarios are anticipated to include the relocation of the east branch library from its current location to a new location in the vicinity of the Flagstaff Mall and Country Club Drive, and the development of a south branch library in approximately 10 years. Other city facility needs for all scenarios include the relocation and expansion of the city maintenance shop, and possible expansion of municipal offices at City Hall.

Schools

The Flagstaff Unified School District anticipates that projected growth in the region will generate total student enrollment growth in the Flagstaff area of 1,630 students. Projections are modest, at 0.85% annual student enrollment growth rate through the year 2020. This will generate an increase of 500–600 high school students, 250–300 middle school students, and 700–850

elementary students. Excess capacity currently exists in the district's high schools, but a new middle school is likely to be required within the next 10 years. It is anticipated that the new school would be built in the Doney Park area. Elementary school capacity would likely need to be addressed by increasing building a new elementary school, probably in the Lake Mary Road area. Scenarios are not likely to cause changes in the school district's capital facilities planning, but may have an impact on attendance areas and/or transportation requirements.

Parks and Trails

An analysis of park needs has determined that development will generate the requirement for approximately 52 acres of new parkland in the city. This would comprise a total of 8 new parks, ranging from neighborhood parks to community parks in size and function. Also identified was the need for a special-purpose facility, consisting of a recreation center that might include a municipal pool complex. This would require a 25-acre site, and could be located either on McMillan Mesa or on South Lake Mary Road. Regional trail systems would largely be based on completion of the Flagstaff Urban Trails System (FUTS), including linkages identified in outlying areas. It is not anticipated that overall park facility needs will vary significantly between scenarios, since those needs are determined by population. Park locations may vary, and it is likely that areas of the city that are currently deficient with regard to park facilities may require additional attention under Scenario 2 due to increased development within the city core area.

Fire Protection

An analysis of fire protection needs being conducted by the Flagstaff Fire Department is underway, and more complete information will be forthcoming. Preliminary findings about existing conditions have indicated the following:

1. Relocation of several fire stations (#2 and/or #5) is currently being evaluated to address deficiencies in the area north of Flagstaff Medical Center, the Switzer Canyon Area, and Shadow Mountain.
2. Portions of the county in all fire districts do not have water distribution systems that can supply adequate standards for volume, pressure, or duration. Water tenders (vehicles) are providing fire flow in these areas.
3. Some areas in the region are deficient because of the lack of basic fire protection services. Deficiencies could possibly be corrected with a regional policy of delivering fire protection services. This would involve all area governments collectively seeking a solution to lack of services. This is currently under investigation and further study, with the Flagstaff Fire Department as the lead agency.

In addition to the above, areas where new development will be located will need appropriate infrastructure (adequate roads, water supply, and fire stations) in order to provide fire protection services.